Sonoma Valley Stormwater Management and Groundwater Recharge Scoping Study

Screening

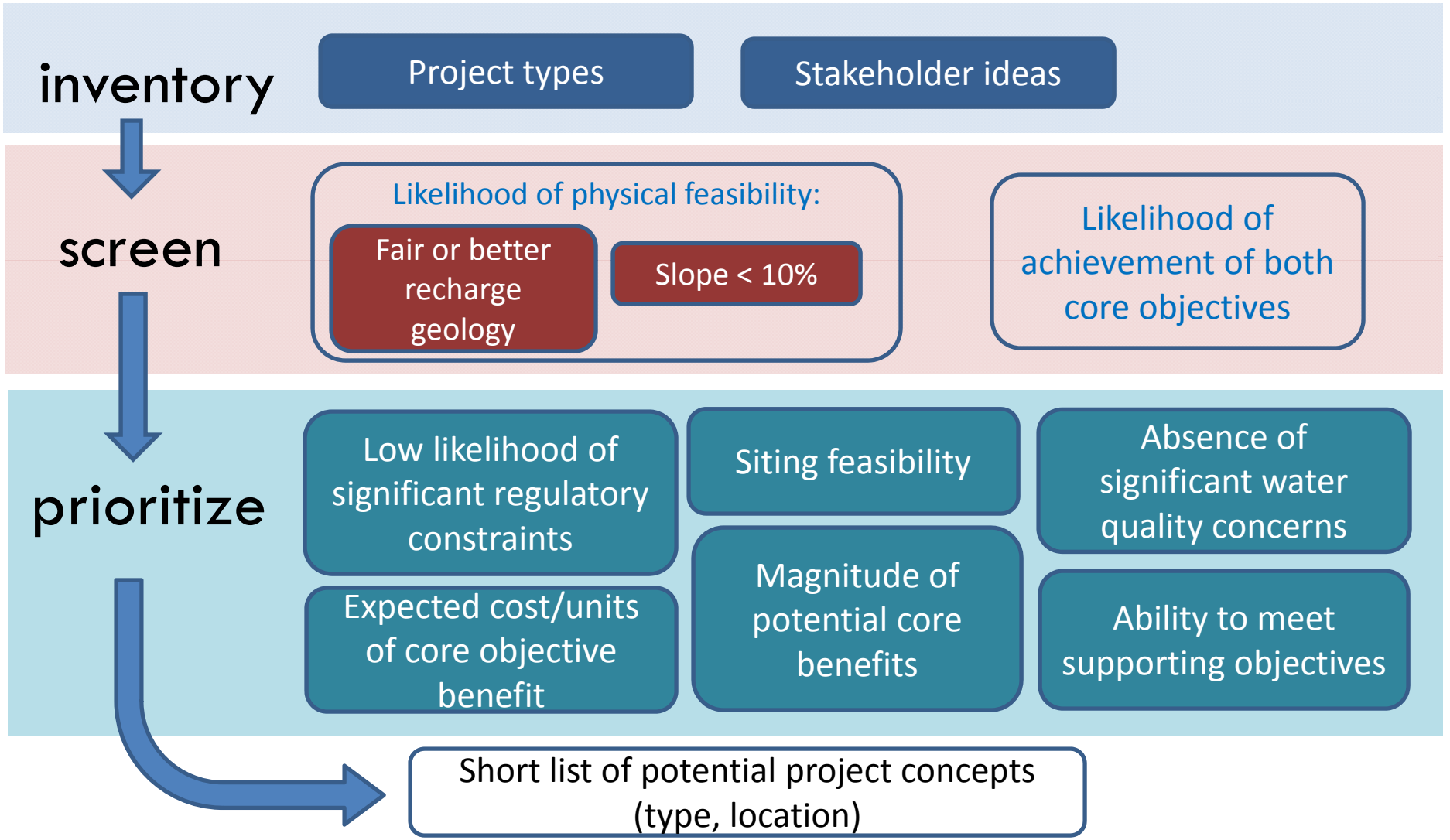
Jenny Sterling

Senior Hydrologist

jensterling@dbstephens.com

SONOMA COUNTY WATER AGENCY

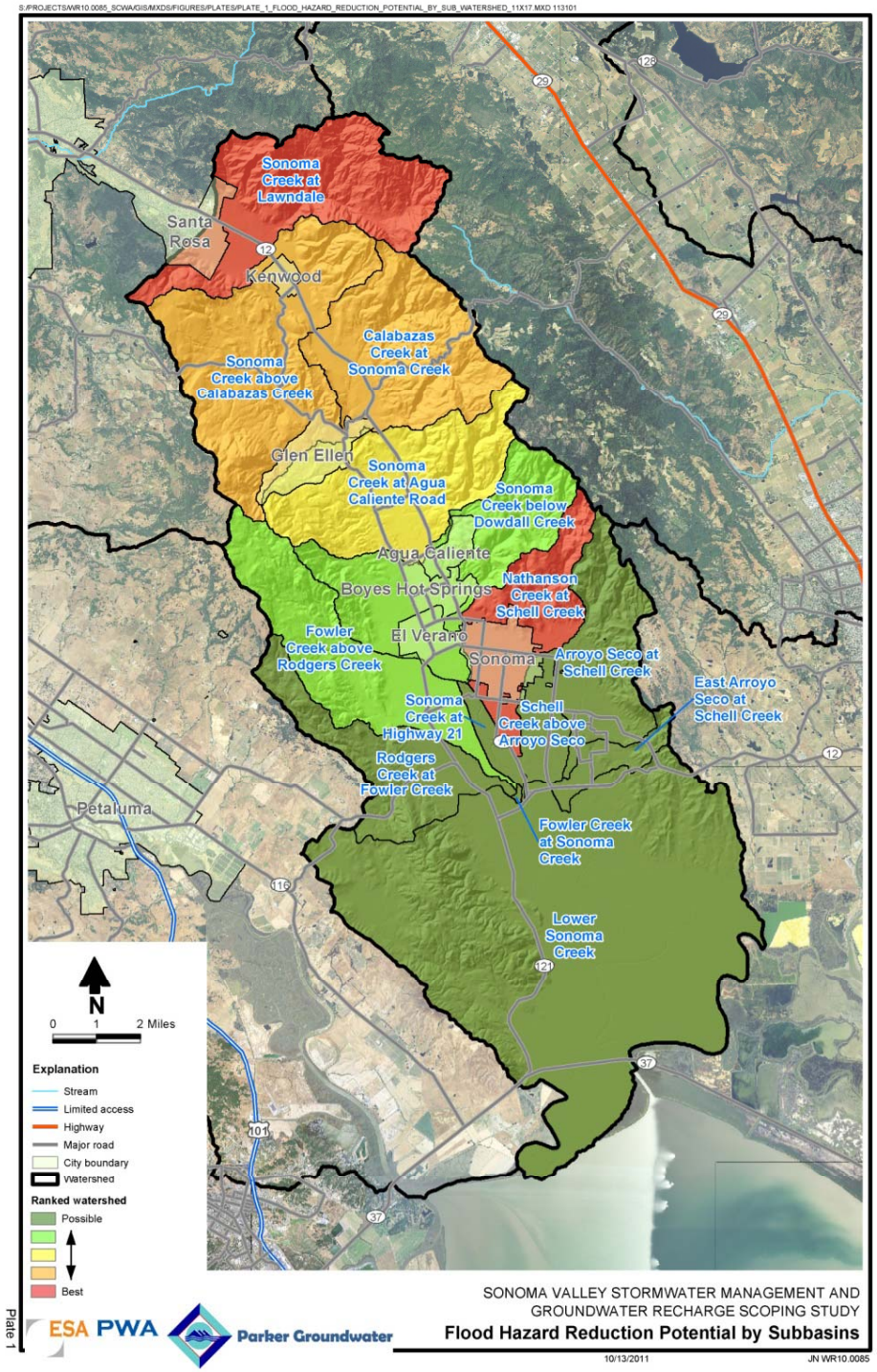
Screen and prioritize



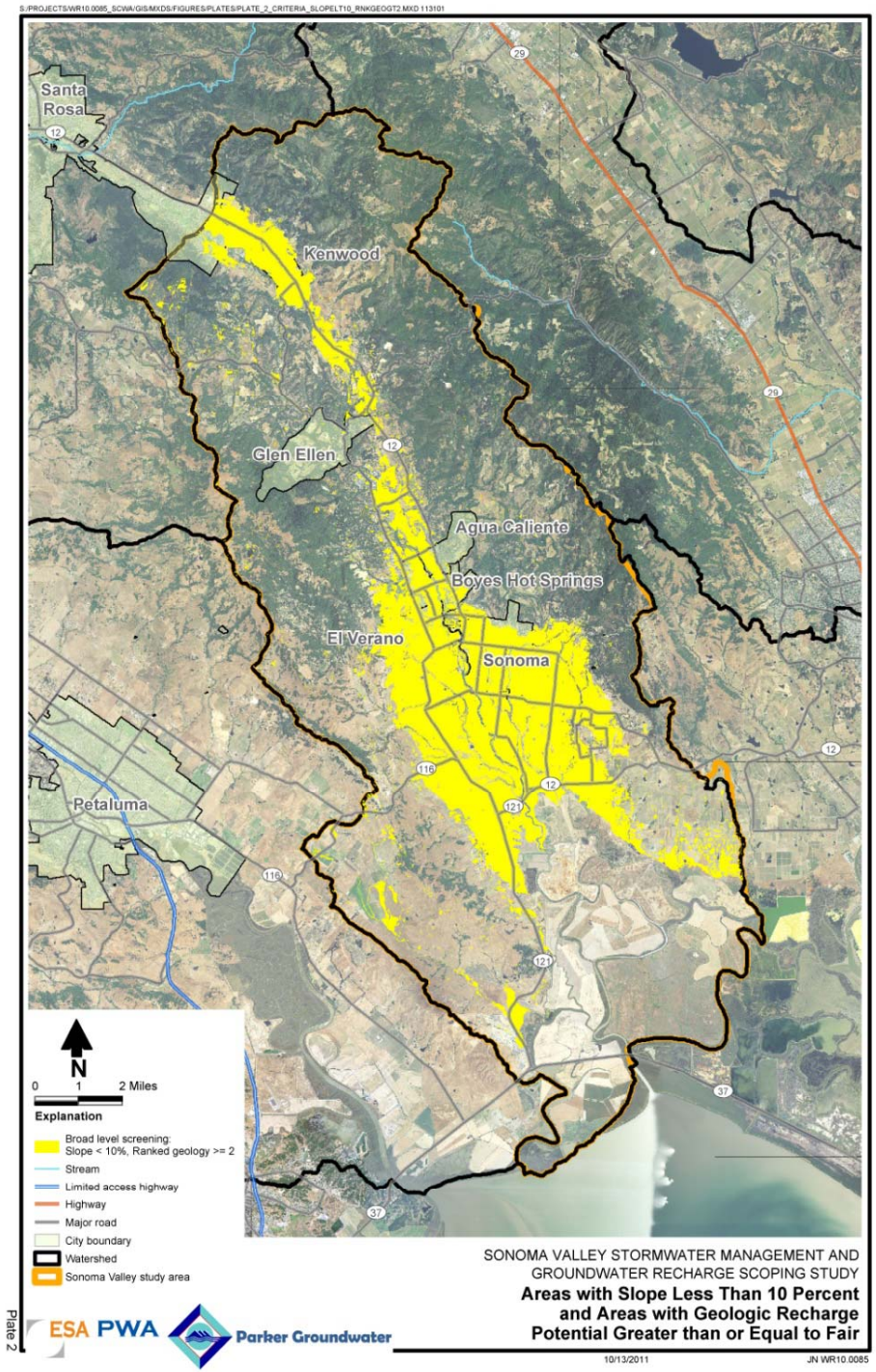
Potential Project Screening

- Meet both core objectives
  - Flood hazard reduction
  - Groundwater recharge
- Location
- Project type

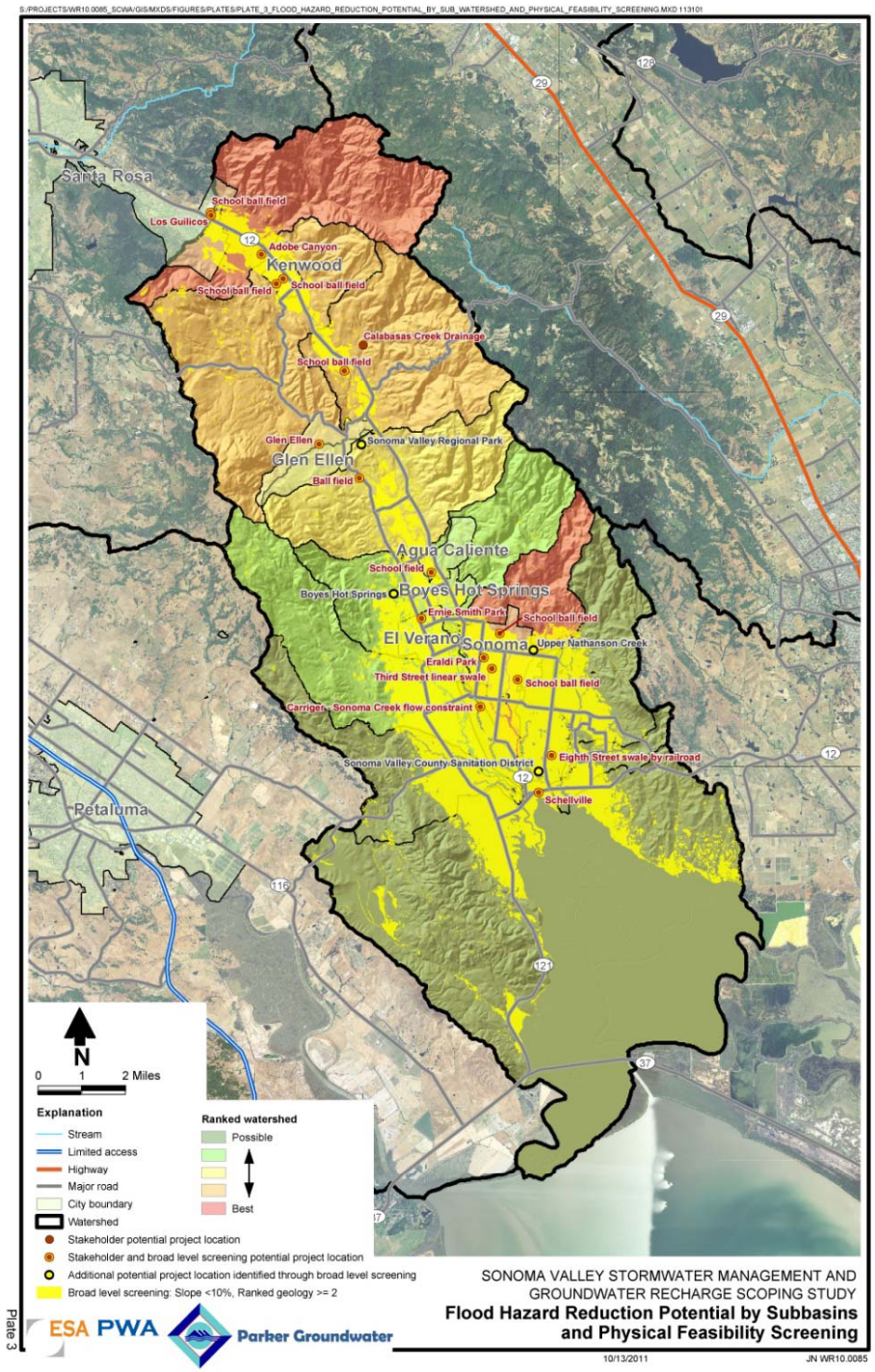
- Flood hazard reduction



- Groundwater recharge



- Meet both core objectives
  - Flood hazard reduction
  - Groundwater recharge

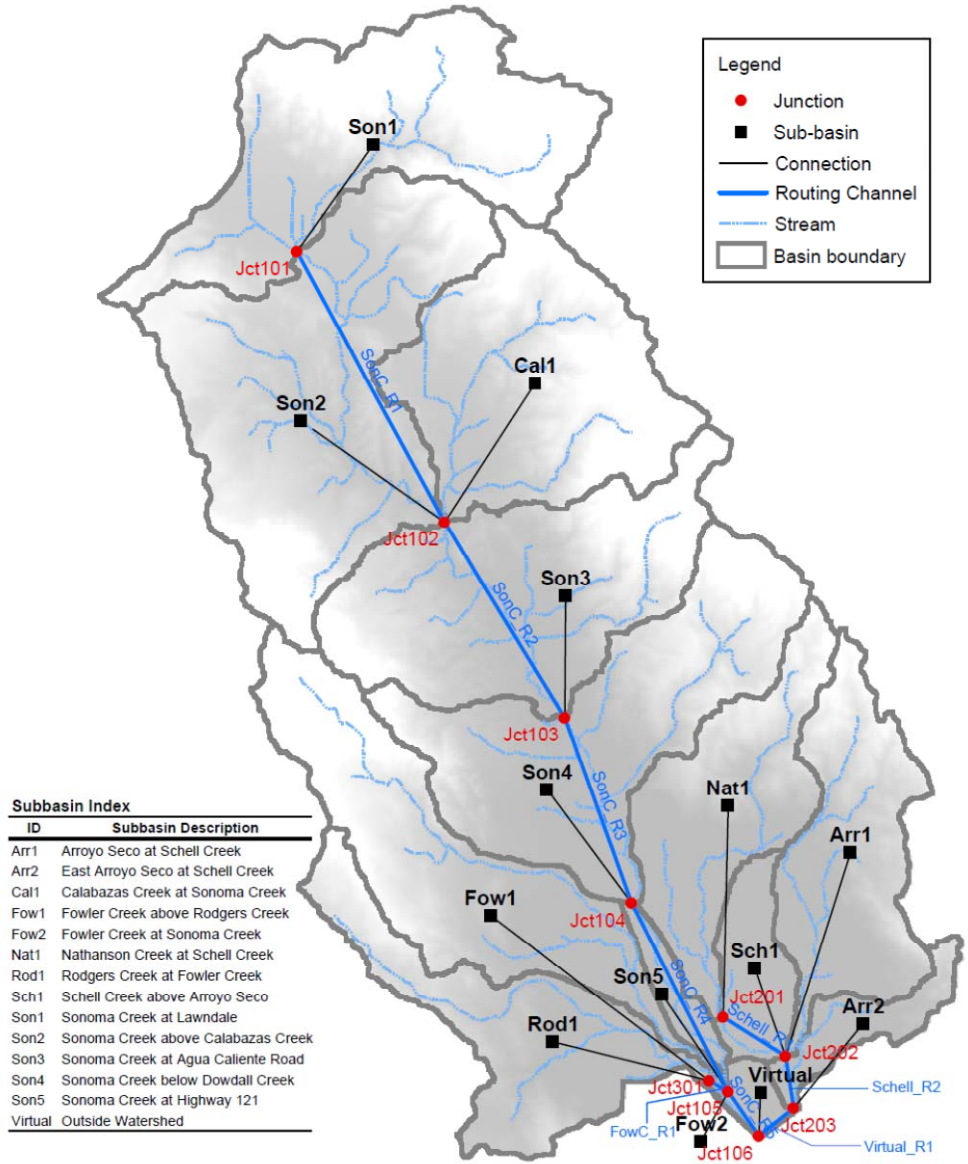


Effectiveness - Dual Objectives

- In-line basins for detention, recharge
- Off-line basins for detention, recharge
- High flow diversion/recharge
- Floodplain attenuation/recharge
- Above-ground or underground storage tank/recharge
- Infiltration gallery/detention
- Self-cleaning infiltration trench/detention
- LID

Flood Hazard Reduction Potential

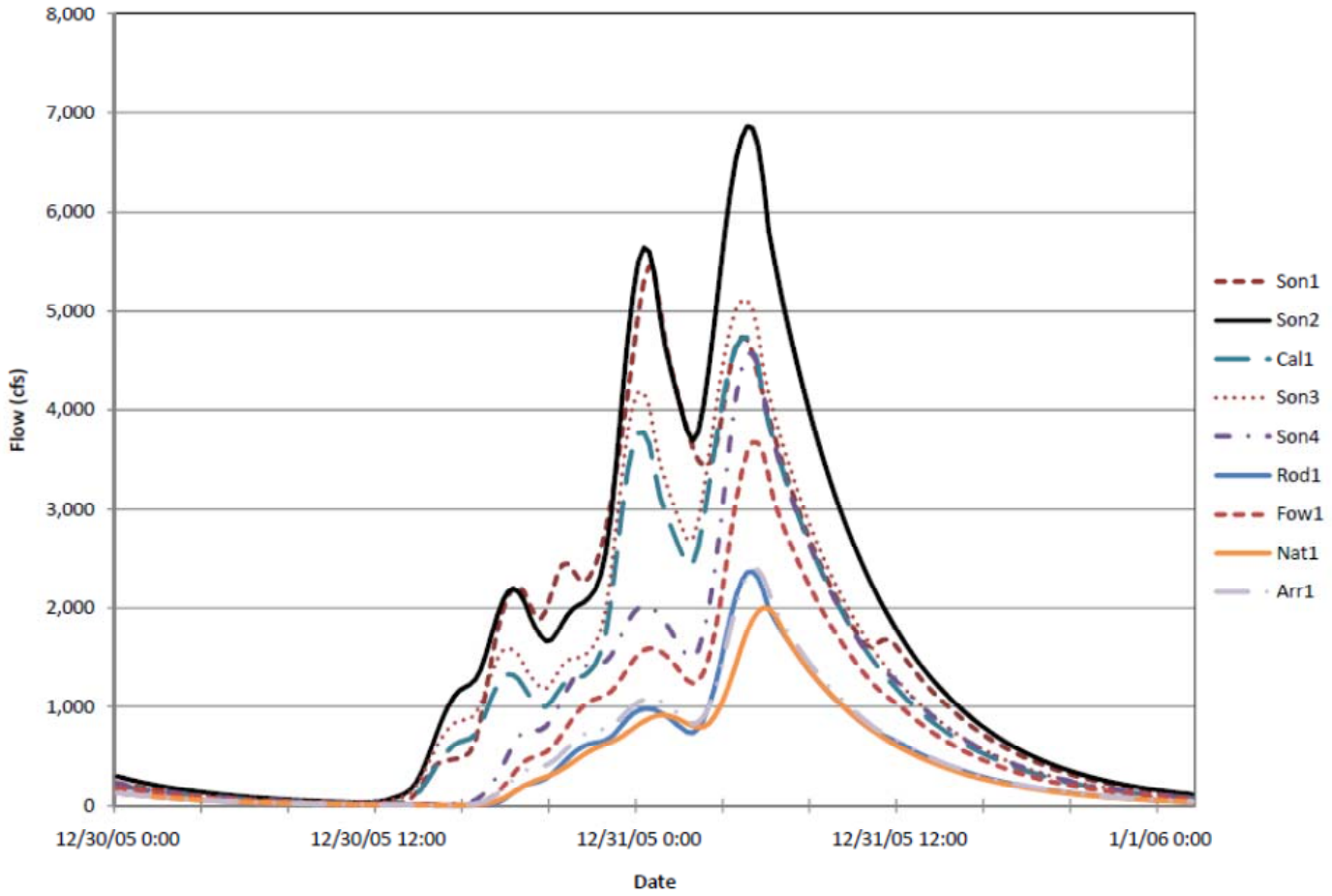
- **Hydrologic model schematic**



Subbasin Index

ID	Subbasin Description
Arr1	Arroyo Seco at Schell Creek
Arr2	East Arroyo Seco at Schell Creek
Cal1	Calabazas Creek at Sonoma Creek
Fow1	Fowler Creek above Rodgers Creek
Fow2	Fowler Creek at Sonoma Creek
Nat1	Nathanson Creek at Schell Creek
Rod1	Rodgers Creek at Fowler Creek
Sch1	Schell Creek above Arroyo Seco
Son1	Sonoma Creek at Lawndale
Son2	Sonoma Creek above Calabazas Creek
Son3	Sonoma Creek at Agua Caliente Road
Son4	Sonoma Creek below Dowdall Creek
Son5	Sonoma Creek at Highway 121
Virtual	Outside Watershed

Subbasin Contributions to Peak Flood Flows



Subbasin contributions to peak flood flows on Sonoma Creek below Dowdall Creek (derived from model described in PWA, 2008)

Physical Feasibility (continued)

- **Recharge potential**
  - Review of previous investigations
  - Stakeholder list of potential project locations
  - Broad level screening to identify potential project locations

Additional project types

- Low Impact Development (LID)
- Ecosystem enhancement
- Other smaller-scale projects
- Have the potential to:
  - Bring additional cost-share dollars to the table
  - Significantly increase the attractiveness of a proposed project to funding agencies
  - Generally broaden public support for a project among the communities of the Sonoma Valley

Screened Project Types by Location

- Identify the project types with
  - potential to achieve both flood hazard reduction and groundwater recharge
  - locations in which they appear to be physically feasible

Retained Project Types by Subbasin

Project type	Subbasins Where Potential Exists to Meet Both Core Objectives
In-line detention/recharge basins	▪ Sonoma Creek at Lawndale ▪ Sonoma Creek above Calabasas Creek ▪ Calabasas Creek at Sonoma Creek ▪ Sonoma Creek at Agua Caliente Road ▪ Sonoma Creek below Dowdall Creek ▪ Nathanson Creek at Schell Creek ▪ Fowler Creek above Rodgers Creek ▪ Arroyo Seco at Schell Creek ▪ Rodgers Creek at Fowler Creek
In-line retention/recharge basin	*(Same subbasins as listed for in-line detention/recharge basin)*

Retained Project Types by Subbasin

Project type	Subbasins Where Potential Exists to Meet Both Core Objectives
Off-line detention/recharge basin	*(Same subbasins as listed for in-line detention/recharge basin)*
Off-line retention/recharge basin	*(Same subbasins as listed for in-line detention/recharge basin)*
High flow diversion/recharge	▪ Sonoma Creek at Lawndale ▪ Sonoma Creek above Calabasas Creek ▪ Sonoma Creek at Agua Caliente Road ▪ Sonoma Creek below Dowdall Creek ▪ Nathanson Creek at Schell Creek ▪ Fowler Creek above Rodgers Creek ▪ Arroyo Seco at Schell Creek ▪ Rodgers Creek at Fowler Creek

Retained Project Types by Subbasin

Project type	Subbasins Where Potential Exists to Meet Both Core Objectives
Floodplain attenuation/recharge	*(Same subbasins as listed for high flow diversion/recharge)*
Above-ground or underground storage tank/recharge	▪ Sonoma Creek at Lawndale ▪ Sonoma Creek above Calabasas Creek ▪ Calabasas Creek at Sonoma Creek ▪ Sonoma Creek at Agua Caliente Road ▪ Sonoma Creek below Dowdall Creek ▪ Nathanson Creek at Schell Creek ▪ Fowler Creek above Rodgers Creek ▪ Arroyo Seco at Schell Creek ▪ Rodgers Creek at Fowler Creek
Infiltration gallery	*(Same subbasins as listed for in-line detention/recharge basin)*
Self-cleaning infiltration trench	*(Same subbasins as listed for in-line detention/recharge basin)*
LID	*(Same subbasins as listed for in-line detention/recharge basin)*

Sonoma Valley: Project Concepts

Jenny Sterling

Senior Hydrologist

jensterling@dbstephens.com